#### **Features**

- Low power consumption
- · Low voltage drop
- · Low temperature coefficient
- High input voltage (up to 30V)
- Quiescent current 2.5μA
- High output current: 100mA
- Output voltage accuracy: tolerance ±3%
- TO92, SOT89 and SOT23-5 packages

## **Applications**

- · Battery-powered equipment
- · Communication equipment
- · Audio/Video equipment

## **General Description**

The HT75xx-1 series is a set of three-terminal low power high voltage implemented in CMOS technology. They can deliver 100mA output current and allow an input voltage as high as 30V. They are available with several fixed output voltages ranging from 2.1V to 12.0V. CMOS technology ensures low voltage drop and low quiescent current.

Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain variable voltages and currents.

#### **Selection Table**

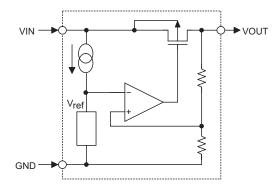
Part No.	Output Voltage	Package	Marking
HT7521-1	2.1V		
HT7523-1	2.3V		
HT7525-1	2.5V		
HT7527-1	2.7V		
HT7530-1	3.0V		
HT7533-1	3.3V		
HT7536-1	3.6V		
HT7540-1	4.0V	TO92 - SOT89 SOT23-5	75xx-1 (for TO92)
HT7544-1	4.4V		75xx-1 (for SOT89) 5xx1 (for SOT23-5)
HT7550-1	5.0V		(
HT7560-1	6.0V		
HT7570-1	7.0V		
HT7580-1	8.0V		
HT7590-1	9.0V		
HT75A0-1	10.0V		
HT75C0-1	12.0V		

Note: "xx" stands for output voltages.

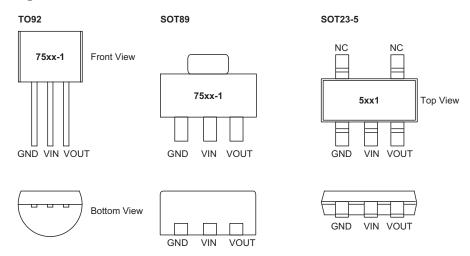
Rev. 2.30 1 March 19, 2014



# **Block Diagram**



# **Pin Assignment**



# **AbsolutemAximum Ratings**

Supply Voltage	-0.3V to 33V	Operating Temperature	-40°C to 85°C
Storage Temperature	-50°C to 125°C		

Note: These are stress ratings only. Stresses exceeding the range specified under "AbsolutemAximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditionsmAy affect device reliability.

## **Thermal Information**

Symbol	Parameter	Package	Max.	Unit
		SOT23-5	500	°C/W
	Thermal Resistance (Junction to Ambient) (Assume no ambient airflow, no heat sink)	SOT89	200	°C/W
		TO92	200	°C/W
	Power Dissipation	SOT23-5	0.20	W
P₀		SOT89	0.50	W
		TO92	0.50	W

Note: P<sub>D</sub> is measured at Ta=25°C

Rev. 2.30 2 March 19, 2014



# **Pin Descriptions**

Pin No.	Pin Name	Pin Description
1	GND	Ground pin
2	VIN	Input pin
3	VOUT	Output pin

## **Electrical Characteristics**

## HT7521-1, +2.1V Output Type

Ta=25°C

Cumbal	Parameter	Test Conditions	Min.	Min Tun	Max.	Unit
Symbol	Parameter	Conditions	IVIIII.	Тур.	IVIAX.	Unit
V <sub>IN</sub>	Input Voltage	_	_	_	30	V
V <sub>оит</sub>	Output Voltage	V <sub>IN</sub> =4.1V, I <sub>OUT</sub> =10mA	2.037	2.100	2.163	V
Гоит	Output Current	V <sub>IN</sub> =4.1V	70	100	_	mA
$\Delta V_{OUT}$	Load Regulation	V <sub>IN</sub> =4.1V, 1mA≤I <sub>OUT</sub> ≤50mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	I <sub>OUT</sub> =1mA, ΔV <sub>OUT</sub> =2%	_	30	100	mV
Iss	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	3.1V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_{a} \times V_{OUT}}$	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

## HT7523-1, +2.3V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Tun	Max.	Unit
Syllibol	Parameter	Conditions	IVIIII.	Тур.	Wax.	Offic
V <sub>IN</sub>	Input Voltage	_	_	_	30	V
V <sub>оит</sub>	Output Voltage Tolerance	V <sub>IN</sub> =4.3V, I <sub>OUT</sub> =10mA	2.231	2.300	2.369	V
Гоит	Output Current	V <sub>IN</sub> =4.3V	70	100	_	mA
$\Delta V_{OUT}$	Load Regulation	V <sub>IN</sub> =4.3V, 1mA≤I <sub>OUT</sub> ≤50mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	I <sub>OUT</sub> =1mA, ΔV <sub>OUT</sub> =2%	_	30	100	mV
Iss	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{\text{OUT}}}{\Delta V_{\text{IN}} \times V_{\text{OUT}}}$	Line Regulation	3.3V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_{a} \times V_{OUT}}$	Temperature Coefficient	І <sub>оит</sub> =10mA, -40°С<Та<85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN}=V_{OUT}+2V$  with a fixed load.

Rev. 2.30 March 19, 2014



## HT7525-1, +2.5V Output Type

Ta=25°C

Ob. al	Barranadara	Test Conditions	Min	Min Tun	Maria	1114
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
Vin	Input Voltage	_	_	_	30	V
V <sub>оит</sub>	Output Voltage	V <sub>IN</sub> =4.5V, I <sub>OUT</sub> =10mA	2.425	2.500	2.575	V
I <sub>OUT</sub>	Output Current	V <sub>IN</sub> =4.5V	70	100	_	mA
ΔVουτ	Load Regulation	V <sub>IN</sub> =4.5V, 1mA≤I <sub>OUT</sub> ≤50mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	Ι <sub>ουτ</sub> =1mA, ΔV <sub>ουτ</sub> =2%	_	30	100	mV
I <sub>SS</sub>	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	3.5V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V
$\Delta V_{OUT} \over \Delta T_a \times V_{OUT}$	Temperature Coefficient	І <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

## HT7527-1, +2.7V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
Symbol	raiailletei	Conditions	IVIIII.	Typ.	IVIAA.	Oilit
V <sub>IN</sub>	Input Voltage	_	_	_	30	V
V <sub>OUT</sub>	Output Voltage	V <sub>IN</sub> =4.7V, I <sub>OUT</sub> =10mA	2.619	2.700	2.781	V
I <sub>OUT</sub>	Output Current	V <sub>IN</sub> =4.7V	70	100	_	mA
$\Delta V_OUT$	Load Regulation	V <sub>IN</sub> =4.7V, 1mA≤I <sub>OUT</sub> ≤50mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	Ι <sub>ουτ</sub> =1mA, ΔV <sub>ουτ</sub> =2%	_	30	100	mV
I <sub>SS</sub>	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	3.7V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V
$\frac{\Delta V_{OUT}}{\Delta T_{a} \times V_{OUT}}$	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{\text{IN}} = V_{\text{OUT}} + 2V$  with a fixed load.

Rev. 2.30 4 March 19, 2014



## HT7530-1, +3.0V Output Type

Ta=25°C

Ob. al	D	Test Conditions	Min		Min Tun		1114
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit	
Vin	Input Voltage	_	_	_	30	V	
Vout	Output Voltage	V <sub>IN</sub> =5.0V, I <sub>OUT</sub> =10mA	2.910	3.000	3.090	V	
I <sub>OUT</sub>	Output Current	V <sub>IN</sub> =5.0V	70	100	_	mA	
ΔV <sub>OUT</sub>	Load Regulation	V <sub>IN</sub> =5.0V, 1mA≤I <sub>OUT</sub> ≤50mA	_	25	60	mV	
V <sub>DIF</sub>	Dropout Voltage (Note)	I <sub>OUT</sub> =1mA, ΔV <sub>OUT</sub> =2%	_	30	100	mV	
I <sub>SS</sub>	Quiescent Current	No load	_	2.5	4.0	μA	
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	4.0V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V	
$\frac{\Delta V_{OUT}}{\Delta T_{a} \times V_{OUT}}$	Temperature Coefficient	І <sub>оит</sub> =10mA, -40°C<Т <sub>а</sub> <85°C	_	100	_	ppm/°C	

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

## HT7533-1, +3.3V Output Type

Ta=25°C

Compleal	Downwater	Test Conditions Min	1000 201111110110	T	Marr	11
Symbol	Parameter	Conditions	IVIII.	Тур.	Max.	Unit
Vin	Input Voltage	_	_	_	30	V
Vout	Output Voltage	V <sub>IN</sub> =5.3V, I <sub>OUT</sub> =10mA	3.201	3.300	3.399	V
Гоит	Output Current	V <sub>IN</sub> =5.3V	70	100	_	mA
$\Delta V_{\text{OUT}}$	Load Regulation	V <sub>IN</sub> =5.3V, 1mA≤I <sub>OUT</sub> ≤50mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	Ι <sub>ουτ</sub> =1mA, ΔV <sub>ουτ</sub> =2%	_	25	55	mV
I <sub>SS</sub>	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	4.3V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V
$\Delta V$ OUT $\Delta T_a \times V$ OUT	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{\text{IN}}=V_{\text{OUT}}+2V$  with a fixed load.

Rev. 2.30 5 March 19, 2014



## HT7536-1, +3.6V Output Type

Ta=25°C

Ob. al	D	Test Conditions	Min		Min Tun		1114
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit	
Vin	Input Voltage	_	_	_	30	V	
Vout	Output Voltage	V <sub>IN</sub> =5.6V, I <sub>OUT</sub> =10mA	3.492	3.600	3.708	V	
I <sub>OUT</sub>	Output Current	V <sub>IN</sub> =5.6V	70	100	_	mA	
ΔV <sub>OUT</sub>	Load Regulation	V <sub>IN</sub> =5.6V, 1mA≤I <sub>OUT</sub> ≤50mA	_	25	60	mV	
V <sub>DIF</sub>	Dropout Voltage (Note)	Ι <sub>ΟυΤ</sub> =1mA, ΔV <sub>ΟυΤ</sub> =2%	_	25	55	mV	
I <sub>SS</sub>	Quiescent Current	No load	_	2.5	4.0	μA	
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	4.6V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V	
$\frac{\Delta V_{OUT}}{\Delta T_{a} \times V_{OUT}}$	Temperature Coefficient	I <sub>о∪т</sub> =10mA, -40°C <t<sub>a&lt;85°C</t<sub>	_	100	_	ppm/°C	

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

## HT7540-1, +4.0V Output Type

Ta=25°C

Comple ed	Downwoodow	Test Conditions	Min	Torre	Mass	11
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
V <sub>IN</sub>	Input Voltage	_	_	_	30	V
Vout	Output Voltage	V <sub>IN</sub> =6.0V, I <sub>OUT</sub> =10mA	3.880	4.000	4.120	V
Гоит	Output Current	V <sub>IN</sub> =6.0V	70	100	_	mA
ΔVουτ	Load Regulation	V <sub>IN</sub> =6.0V, 1mA≤I <sub>OUT</sub> ≤50mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	I <sub>OUT</sub> =1mA, ΔV <sub>OUT</sub> =2%	_	25	55	mV
I <sub>SS</sub>	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	5.0V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V
$\Delta V_{OUT} \over \Delta T_{a} \times V_{OUT}$	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{\rm IN}=V_{\rm OUT}+2V$  with a fixed load.

Rev. 2.30 6 March 19, 2014



## HT7544-1, +4.4V Output Type

Ta=25°C

Ob. al	D	Test Conditions	B.41	Min Ton Man		1114
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
V <sub>IN</sub>	Input Voltage	_	_	_	30	V
Vout	Output Voltage	V <sub>IN</sub> =6.4V, I <sub>OUT</sub> =10mA	4.268	4.400	4.532	V
I <sub>OUT</sub>	Output Current	V <sub>IN</sub> =6.4V	70	100	_	mA
ΔVουτ	Load Regulation	V <sub>IN</sub> =6.4V, 1mA≤I <sub>OUT</sub> ≤50mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	Ι <sub>Ουτ</sub> =1mA, ΔV <sub>Ουτ</sub> =2%	_	25	55	mV
I <sub>SS</sub>	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	5.4V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V
$\Delta V$ OUT $\Delta T_a \times V$ OUT	Temperature Coefficient	І <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

## HT7550-1, +5.0V Output Type

Ta=25°C

Ob. al	Down and an	Test Conditions	B.41	T	M	1114	
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit	
Vin	Input Voltage	_	_	_	30	V	
Vout	Output Voltage	V <sub>IN</sub> =7.0V, I <sub>OUT</sub> =10mA	4.850	5.000	5.150	V	
I <sub>OUT</sub>	Output Current	V <sub>IN</sub> =7.0V	100	150	_	mA	
ΔVουτ	Load Regulation	V <sub>IN</sub> =7.0V, 1mA≤I <sub>OUT</sub> ≤70mA	_	25	60	mV	
V <sub>DIF</sub>	Dropout Voltage (Note)	I <sub>OUT</sub> =1mA, ΔV <sub>OUT</sub> =2%	_	25	55	mV	
I <sub>SS</sub>	Quiescent Current	No load	_	2.5	4.0	μA	
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	6.0V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	_	0.2	%/V	
$\Delta V$ OUT $\Delta T_a \times V$ OUT	Temperature Coefficient	I <sub>OUT</sub> =10mA, -40°C <t<sub>a&lt;85°C</t<sub>	_	100	_	ppm/°C	

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

Rev. 2.30 7 March 19, 2014



## HT7560-1, +6.0V Output Type

Ta=25°C

Comple al	Barrantar	Test Conditions	Min	T	Marr	I I mit
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
V <sub>IN</sub>	Input Voltage	_	_	_	30	V
V <sub>оит</sub>	Output Voltage	V <sub>IN</sub> =8.0V, I <sub>OUT</sub> =10mA	5.820	6.000	6.180	V
Гоит	Output Current	V <sub>IN</sub> =8.0V	150	_	_	mA
$\Delta V_{\text{OUT}}$	Load Regulation	V <sub>IN</sub> =8.0V, 1mA≤I <sub>OUT</sub> ≤70mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	Ι <sub>ΟυΤ</sub> =1mA, ΔV <sub>ΟυΤ</sub> =2%	_	25	55	mV
Iss	Quiescent Current	No load	_	2.5	4.0	μΑ
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	7.0V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	0.2	_	%/V
$\Delta V$ OUT $\Delta T_a \times V$ OUT	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

## HT7570-1, +7.0V Output Type

Ta=25°C

Cymhal	Parameter	Test Conditions	Min.	Tim	Max.	Unit
Symbol	Parameter	Conditions	IVIIII.	Тур.	IVIAX.	Unit
V <sub>IN</sub>	Input Voltage	_	_	_	30	V
Vout	Output Voltage	V <sub>IN</sub> =9.0V, I <sub>OUT</sub> =10mA	6.790	7.000	7.210	V
Гоит	Output Current	V <sub>IN</sub> =9.0V	150	_	_	mA
$\Delta V_OUT$	Load Regulation	V <sub>IN</sub> =9.0V, 1mA≤I <sub>OUT</sub> ≤70mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	I <sub>OUT</sub> =1mA, ΔV <sub>OUT</sub> =2%	_	25	55	mV
Iss	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	8.0V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	0.2	_	%/V
$\Delta V$ OUT $\Delta T_a \times V$ OUT	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

Rev. 2.30 8 March 19, 2014



## HT7580-1, +8.0V Output Type

Ta=25°C

Comple al	Downwater	Test Conditions	Min	Min. Typ.		11
Symbol	Parameter	Conditions	IVIIII.	Тур.	Max.	Unit
V <sub>IN</sub>	Input Voltage	_	_	_	30	V
V <sub>оит</sub>	Output Voltage	V <sub>IN</sub> =10.0V, I <sub>OUT</sub> =10mA	7.760	8.000	8.240	V
Гоит	Output Current	V <sub>IN</sub> =10.0V	150	_	_	mA
$\Delta V_{\text{OUT}}$	Load Regulation	V <sub>IN</sub> =10.0V, 1mA≤I <sub>OUT</sub> ≤70mA	_	25	60	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	Ι <sub>ΟυΤ</sub> =1mA, ΔV <sub>ΟυΤ</sub> =2%	_	25	55	mV
Iss	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	9.0V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	0.2	_	%/V
$\Delta V$ OUT $\Delta T_a \times V$ OUT	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

## HT7590-1, +9.0V Output Type

Ta=25°C

Cumbal	Parameter	Test Conditions	Min	Tim	May	l lmi4
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
V <sub>IN</sub>	Input Voltage	_	_	_	30	V
Vout	Output Voltage	V <sub>IN</sub> =11.0V, I <sub>OUT</sub> =10mA	8.730	9.000	9.270	V
Гоит	Output Current	V <sub>IN</sub> =11.0V	150	_	_	mA
$\Delta V_{OUT}$	Load Regulation	V <sub>IN</sub> =11.0V, 1mA≤I <sub>OUT</sub> ≤70mA	_	25	70	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	I <sub>OUT</sub> =1mA, ΔV <sub>OUT</sub> =2%	_	25	55	mV
Iss	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	10.0V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	0.2	_	%/V
$\Delta V$ OUT $\Delta T_a \times V$ OUT	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°C <t<sub>a&lt;85°C</t<sub>	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

Rev. 2.30 9 March 19, 2014



## HT75A0-1, +10.0V Output Type

Ta=25°C

Counch al	Davamatau	Test Conditions	Min	Min Tun May		11:::4
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
Vin	Input Voltage	_	_	_	30	V
V <sub>OUT</sub>	Output Voltage	V <sub>IN</sub> =12.0V, I <sub>OUT</sub> =10mA	9.700	10.000	10.300	V
Гоит	Output Current	V <sub>IN</sub> =12.0V	150	_	_	mA
ΔVουτ	Load Regulation	V <sub>IN</sub> =12.0V, 1mA≤I <sub>OUT</sub> ≤70mA	_	25	70	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	I <sub>OUT</sub> =1mA, ΔV <sub>OUT</sub> =2%	_	25	55	mV
Iss	Quiescent Current	No load	_	2.5	4.0	μA
$\frac{\Delta V_{\text{OUT}}}{\Delta V_{\text{IN}} \times V_{\text{OUT}}}$	Line Regulation	11.0V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	0.2	_	%/V
$\Delta V$ OUT $\Delta T_a \times V$ OUT	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{IN} = V_{OUT} + 2V$  with a fixed load.

## HT75C0-1, +12.0V Output Type

Ta=25°C

Cumbal	Parameter	Test Conditions	Min.	Turn	Max.	Unit
Symbol	Parameter	Conditions	IVIIII.	Тур.	IVIAX.	Unit
Vin	Input Voltage	_	_	_	30	V
V <sub>OUT</sub>	Output Voltage	V <sub>IN</sub> =14.0V, I <sub>OUT</sub> =10mA	11.640	12.000	12.360	V
Іоит	Output Current	V <sub>IN</sub> =14.0V	150	_	_	mA
ΔVουτ	Load Regulation	V <sub>IN</sub> =14.0V, 1mA≤I <sub>OUT</sub> ≤70mA	_	25	70	mV
V <sub>DIF</sub>	Dropout Voltage (Note)	I <sub>OUT</sub> =1mA, ΔV <sub>OUT</sub> =2%	_	25	55	mV
Iss	Quiescent Current	No load	_	2.5	4.0	μΑ
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	13.0V≤V <sub>IN</sub> ≤30V, I <sub>OUT</sub> =1mA	_	0.2	_	%/V
$\Delta V$ OUT $\Delta T_a \times V$ OUT	Temperature Coefficient	I <sub>оит</sub> =10mA, -40°С<Т <sub>а</sub> <85°С	_	100	_	ppm/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at  $V_{\rm IN}=V_{\rm OUT}+2V$  with a fixed load.

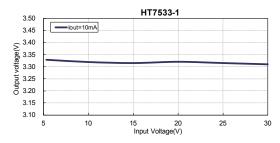
Rev. 2.30 10 March 19, 2014

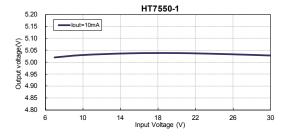


## **Typical Performance Characteristics**

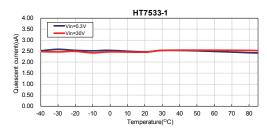
Test Condition: Vin=Vout+2V, I<sub>OUT</sub>=10mA, T<sub>J</sub>=25°C, unless otherwise noted

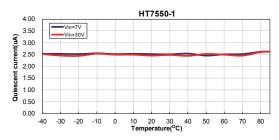
## **Output Voltage vs Input Voltage**



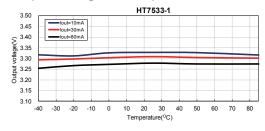


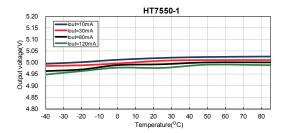
## Quiescent current (lout=0mA) vs Temperature



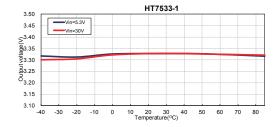


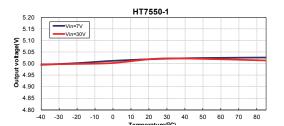
## **Output Voltage vs Temperature**





#### **Output Voltage vs Temperature**

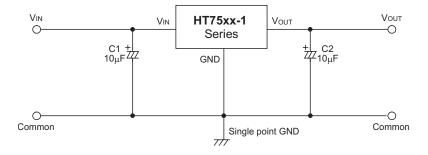




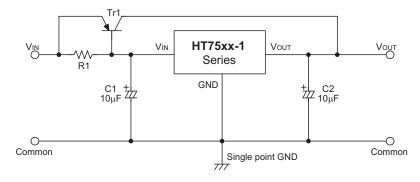


# **Application Circuits**

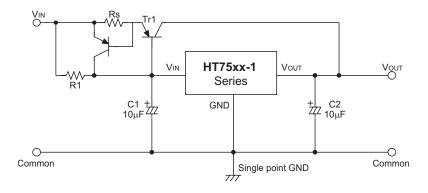
## **Basic Circuit**



# **High Output Current Positive Voltage Regulator**



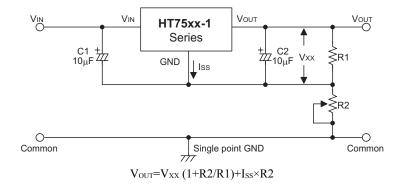
## **Short-Circuit Protection for Tr1**



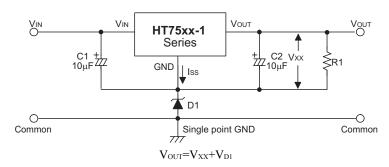
Rev. 2.30 12 March 19, 2014



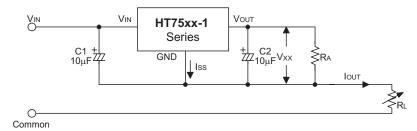
## **Circuit for Increasing Output Voltage**



## **Circuit for Increasing Output Voltage**

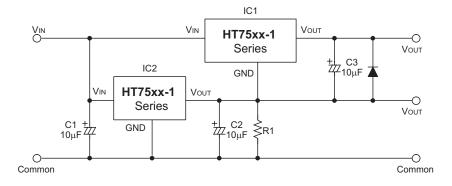


## **Constant Current Regulator**



 $I_{\text{OUT}} \!\!=\!\! V_{\text{XX}} \!/ R_{\text{A}} \!\!+\!\! I_{\text{SS}}$ 

## **Dual Supply**



Rev. 2.30 March 19, 2014



# **Package Information**

Note that the package information provided here is for consultation purposes only. As this information may be updated at regular intervals users are reminded to consult the <u>Holtek website</u> for the latest version of the package information.

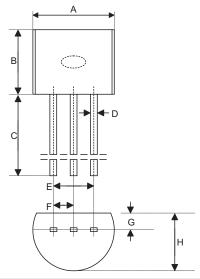
Additional supplementary information with regard to packaging is listed below. Click on the relevant section to be transferred to the relevant website page.

- Further Package Information (include Outline Dimensions, Product Tape and Reel Specifications)
- Packing Meterials Information
- Carton information

Rev. 2.30 14 March 19, 2014



# 3-pin TO92 Outline Dimensions



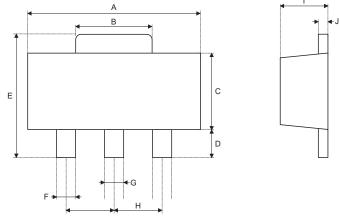
Symbol	Dimensions in inch				
Symbol	Min.	Nom.	Max.		
A	0.173	0.180	0.205		
В	0.170	_	0.210		
С	0.500	0.580	_		
D	_	0.015 BSC	_		
E	_	0.010 BSC	_		
F	_	0.050 BSC	_		
G	_	0.035 BSC	_		
Н	0.125	0.142	0.165		

Cumbal	Dimensions in mm				
Symbol	Min.	Nom.	Max.		
A	4.39	4.57	5.21		
В	4.32	_	5.33		
С	12.70	14.73	_		
D	_	0.38 BSC	_		
E	_	2.54 BSC	_		
F	_	1.27 BSC	_		
G	_	0.89 BSC	_		
Н	3.18	3.61	4.19		

Rev. 2.30 15 March 19, 2014



# 3-pin SOT89 Outline Dimensions



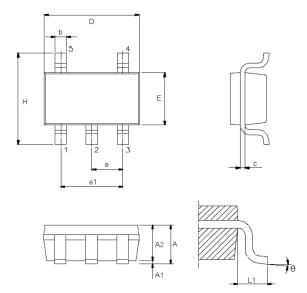
Symbol		Dimensions in inch					
	Min.	Nom.	Max.				
А	0.173	_	0.181				
В	0.053	_	0.072				
С	0.090	_	0.102				
D	0.035	_	0.047				
E	0.155	_	0.167				
F	0.014	_	0.019				
G	0.017	_	0.022				
Н	_	0.059 BSC	_				
I	0.055	_	0.063				
J	0.014	_	0.017				

Cumhal	Dimensions in mm				
Symbol	Min.	Nom.	Max.		
A	4.40	_	4.60		
В	1.35	_	1.83		
С	2.29	_	2.60		
D	0.89	_	1.20		
E	3.94	_	4.25		
F	0.36	_	0.48		
G	0.44	_	0.56		
Н	_	1.50 BSC	_		
I	1.40	_	1.60		
J	0.35	_	0.44		

Rev. 2.30 16 March 19, 2014



# 5-pin SOT23-5 Outline Dimensions



Symbol	Dimensions in inch		
	Min.	Nom.	Max.
А	_	_	0.057
A1	_	_	0.006
A2	0.035	0.045	0.051
b	0.012	_	0.020
С	0.003	_	0.009
D	_	0.114 BSC	_
E	_	0.063 BSC	_
е	_	0.037 BSC	_
e1	_	0.075 BSC	_
Н	_	0.110 BSC	_
L1	_	0.024 BSC	_
θ	0°	_	8°

Symbol	Dimensions in mm		
	Min.	Nom.	Max.
A	_	_	1.45
A1	_	_	0.15
A2	0.90	1.15	1.30
b	0.30	_	0.50
С	0.08	_	0.22
D	_	2.90 BSC	_
E	_	1.60 BSC	_
е	_	0.95 BSC	_
e1	_	1.90 BSC	_
Н	_	2.80 BSC	_
L1	_	0.60 BSC	_
θ	0°	_	8°

Rev. 2.30 17 March 19, 2014



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Rev. 2.30 18 March 19, 2014